MAPPING APPLICATION WITH TRANSIT MODE

INCORPORATION BY REFERENCE; DISCLAIMER

[0001] Each of the following applications are hereby incorporated by reference: application Ser. No. 15/645,889 filed Jul. 10, 2017; application Ser. No. 14/871,403 filed Sep. 30, 2015; application Ser. No. 14/869,995 filed Sep. 29, 2015; application Ser. No. 14/869,993 filed Sep. 29, 2015, application No. 62/172,147 filed Jun. 7, 2015; application Ser. No. 14/545,680 filed Jun. 6, 2015. The Applicant hereby rescinds any disclaimer of claim scope in the parent application(s) or the prosecution history thereof and advises the USPTO that the claims in this application may be broader than any claim in the parent application(s).

BACKGROUND

[0002] With proliferation of mobile devices such as smartphones, users are enjoying numerous applications of numerous kinds that can be run on their devices. One popular type of such application is mapping and navigation applications that allow users to browse maps and get route directions. Despite their popularity, these mapping and navigation applications have yet to introduce a comprehensive and efficient transit routing and navigation system to the market.

BRIEF SUMMARY

[0003] Some embodiments provide an integrated mapping and navigation application with several map browsing modes, including a novel transit browsing mode. The mapping and navigation application of some embodiments executes on a mobile device (e.g., a smartphone, tablet, etc.) and may be used to view maps (e.g., around a current device location) and routes from a specified location (e.g., the current location of the device) to a specified destination. In some embodiments, the map browsing modes include a standard map browsing mode that displays a first schematic map of a region emphasizing a first set of features and a transit map browsing mode that displays a second schematic map of the region emphasizing a second set of transit-related features. The map browsing modes of some embodiments may also include a raster-image based mode, and a hybrid of the standard (or transit) mode with the raster-image based mode.

[0004] In some embodiments, the standard map browsing mode emphasizes roads, land cover (e.g., parks, etc.), places of interest, waterways, etc. by presenting these map constructs using bright and vivid colors, as well as prominently displaying road and place of interest names, road shields (e.g., Interstate highway shields), etc. In the transit map browsing mode, however, these constructs are de-emphasized in favor of transit-related constructs. For example, in some embodiments, the same map region is displayed in transit mode with fewer roads displayed and labeled, and the land cover, roads, and waterways displayed using more faded coloration. However, in transit mode, the application displays the transit lines and transit stations in the region, using much more vivid colors. In some embodiments, the application uses transit line colors based on the colors used by the transit system providers to identify different transit routes in the region. In some embodiments, the application uses stylesheets to render the same data (e.g., the same vector-based polygons) using different textures and/or colors in standard mode and transit mode. For instance, the stylesheet might specify a bright green texture for parks in standard mode but a paler green texture for the same parks in transit mode.

[0005] As mentioned, the transit mode of some embodiments emphasizes transit-related map constructs, including transit lines and transit stations. In some embodiments, different zoom levels of the transit mode will display different features. At the lowest zoom levels (e.g., displaying an entire country or continent), intra-city transit will not be shown, and only the large-scale transit lines (e.g., interstate train or bus lines, large intra-state lines) will be shown. These may correlate to a specific transit route or transit provider, or simply show the existence of transit mutes between cities. As the user zooms in to higher zoom levels, the application displays more detailed transit information in some embodiments. Smaller-scale transit lines are shown, using colors that differentiate the different lines. In addition, transit line shields are displayed along the lines to allow the user to identify the different transit providers and/or transit routes.

[0006] In some embodiments, at a given zoom level, the application displays certain transit lines more prominently than other transit lines. For instance, certain lines deemed to be more important for the particular map region (e.g., higher-frequency lines, lines for a particular transit system, lines that carry more passengers on a regular basis, etc.) are displayed using thicker lines and/or brighter, more saturated coloration. In addition, when multiple transit routes share the same tracks (for, e.g., trains) or roads (for, e.g., buses), some embodiments display the multiple routes as a single line, with multiple line shields to indicate the multiple different transit routes (e.g., different trains or buses). When one of the routes branches off, some embodiments use the single line shield to identify that branch, in some cases displaying the branch as a thinner line than used for the trunk line. For more important transit systems in the area, some embodiments display multi-colored lines next to each other rather than grouping the lines into a single transit line. In addition, when multiple lines use parallel, but separate tracks, the application of some embodiments displays the lines separately.

[0007] Some embodiments display road labels in transit mode, though for fewer roads than in the standard map browring mode. Specifically, some embodiments display road labels for roads along which transit lines travel (e.g., bus lines, trolley lines, etc.). In some embodiments, the application displays these road labels on the road (as in standard map browsing mode) when the road label does not obscure any transit stops or stations along the road. However, when the transit line includes too many transit stops or stations, the application displays the road label next to the road rather than overlaid on the road (as when displaying traffic information in standard mode of some embodiments).

[0008] In addition to transit lines, the application also prominently displays transit stations, which also vary in appearance based on the zoom level. At very low zoom levels, the application, may only display major cities along the transit lines, not indicating any information about particular stations within the cities. At slightly higher zoom levels, but still showing a large-scale transit map, more cities are displayed, but only one station representation is shown for the city (even if multiple stations or stops are present in